

REMARKS

Favorable consideration of this Application as presently amended and in light of the following discussion is respectfully requested.

After entry of the foregoing Amendment, Claims 1-16 are pending in the present Application. Claims 1 and 2 are currently withdrawn. Claims 3, 5-8, and 10-16 have been amended, support for which can be found at least on pages 17 and 18 of the specification. No new matter has been added.

By way of summary, the Official Action presents the following issues: Claims 3, 6, and 11 stand rejected under 35 U.S.C. § 102 as being anticipated by Shimizu (U.S. Patent Publication No. 2002/0196764 A1); Claim 4 stands rejected under 35 U.S.C. § 103 as being unpatentable over Shimizu in view of Lockart et al. (U.S. Patent No. 6,229,806, hereinafter Lockart); Claims 5, 7, and 13 stand rejected under 35 U.S.C. § 103 as being unpatentable over Shimizu in view of O'Brien (U.S. Patent Publication No. 2004/0022931 A1); Claims 8 and 16 stand rejected under 35 U.S.C. § 103 as being unpatentable over Shimizu in view of Ocepek et al. (U.S. Patent No. 204/0049586, hereinafter Ocepek) and further in view of Ibi et al. (U.S. Patent Publication No. 2003/0118189 A1, hereinafter Ibi); Claim 9 stands rejected under 35 U.S.C. § 103 as being unpatentable over Shimizu in view of Ocepek, and further in view of Ibi, and further in view of Meier (U.S. Patent No. 6,847,620); Claim 10 stands rejected under 35 U.S.C. § 103 as being unpatentable over Shimizu in view of Meier, and further in view of Ibi, and further in view of Ocepek; Claims 12 and 14 stand rejected under 35 U.S.C. §103 as being unpatentable over Shimizu in view of Nuutinen (U.S. Patent Publication No. 2002/0129236 A1); and, Claim 15 stands rejected under 35 U.S.C. § 103 as being unpatentable over Shimizu in view of Ocepek, and further in view of Ibi, and further in view of Meier.

REJECTION UNDER 35 U.S.C. § 102

The outstanding Official Action has rejected Claims 3, 6, and 11 under 35 U.S.C. § 102 as being anticipated by Shimizu. The Official Action contends that Shimizu discloses all of the Applicant's claim limitations. Applicant respectfully traverses the rejection.

By way of background, as portable electronic devices are increasingly provided with wireless communication capability, communication functionality across devices, platforms and network technologies, is often required. Such communications are supported by ad-hoc networking environments. Unlike traditional LAN environments in which communications flow between terminals in an access point providing access to the LAN, the ad-hoc network requires data frames be delivered by making a plurality of wireless link hops. In the LAN environment, repeated encryption and decryption at each hop for authentication purposes would introduce unnecessary overhead to each node of the ad-hoc network. In ad-hoc network environments, portable devices are interconnected with one another in an autonomously distributed manner without providing a specific access point.<sup>1</sup>

In light of at least the above deficiencies in the art, the present invention is provided. With at least these objects in mind, a brief comparison of the claimed invention, in view of the cited references, is believed to be in order.

Amended Claim 3 recites, *inter alia*, a terminal, including:

an ad-hoc key management list table having at least one key management list in which authentication header keys with respect to other terminals of an ad-hoc network are held in such a manner as to correspond to the terminal identifiers of said other terminals;

Shimizu describes a wireless LAN system. As shown in Fig. 1, access to Ethernet (5) is provided via access point (AP) (1). Stations (2) wishing to communicate with the Ethernet

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<sup>1</sup> Application at pages 1-3.

are channeled through the AP. Periodically, in order to manage access to the Ethernet, the AP provides beacon frames, including data for synchronization to each station (2). Each station, which has received a pertinent beacon, makes an authentication request to the AP at the time of starting communication and after receiving authentication permission for the AP.<sup>2</sup>

In operation, the Shimizu stations (2) communicate with the AP (1) for clearing a public key management table (40) stored therein. Each terminal (2) includes its own AP data management table (50) for tracking successful authentication across a plurality of APs. As both the APs and stations (2) have their own confidential keys, public keys corresponding thereto, and user certificates with the public keys attached thereto, the stations (2) and the APs are able to participate in an authentication procedure, as outlined in Figs. 6-9.<sup>3</sup>

Conversely, in an exemplary embodiment of the Applicant's invention, as recited in amended Claim 3, terminals of an ad-hoc network include an ad-hoc key management list table. The table includes at least one key management list in which authentication header keys with respect to other terminals of the ad-hoc network are held in such a manner as to correspond to the terminal identifiers of said other terminals.<sup>4</sup>

In this way, terminals of the ad-hoc network are able to relay data between destinations through a simple authentication procedure of header processing. There is no need to do full authentication processing between terminals including encryption and decryption, or to include access points as done in a typical LAN environment discussed in the Applicant's specification<sup>5</sup> and as exhibited by the Shimizu reference. Accordingly, as Applicant's ad-hoc communication terminal and method of authenticating terminals by

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<sup>2</sup> Shimizu at columns 33-36.

<sup>3</sup> Shimizu at paras. 55-67.

<sup>4</sup> Specification at Fig. 6.

<sup>5</sup> Specification at pages 1-3.

header processing is not disclosed or suggested by the cited references, Applicant respectfully requests that the rejection of Claims 3, 6, and 11 under 35 U.S.C. § 102 be withdrawn.

REJECTION UNDER 35 U.S.C. § 103

The outstanding Official Action has rejected Claim 4 under 35 U.S.C. § 103 as being unpatentable over Shimizu in view of Lockart. The Official Action states that Shimizu discloses all of the Applicant's claim limitations, with the exception of discarding a frame when an authentication header is not valid. The Official Action cites Lockart as disclosing this more detailed aspect of the Applicant's invention, and states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references for arriving at the Applicant's claim. Applicant respectfully traverses the rejection.

As noted above, Shimizu does not disclose, or suggest, all of the elements for which it has been asserted with respect to the amended claims. As neither Shimizu, or Lockart, remedy the deficiencies discussed above, Applicant respectfully submits that a prima facie case of obviousness has not been presented. As neither Shimizu, alone, or in combination with Lockart, disclose or suggest all of the Applicant's claims, Applicant respectfully requests that the rejection of Claim 4 under 35 U.S.C. § 103 be withdrawn.

The outstanding Official Action has rejected Claims 5, 7, and 13 under 35 U.S.C. § 103 as being unpatentable over Shimizu in view of O'Brien. The Official Action contends that Shimizu discloses all of the Applicant's claim limitations, with the exception of decrypting the payload of a frame by using an extracted unicast encryption key. However, the Official Action cites O'Brien as disclosing this more detailed aspect of the Applicant's invention, and states that it would have been obvious to one of ordinary skill in the art at the

time the invention was made to combine the cited references for arriving at the Applicant's claims. Applicant respectfully traverses the rejection.

As noted above, Shimizu does not disclose, or suggest, all of the elements for which it has been asserted with respect to the amended claims. As neither Shimizu, or O'Brien, remedy the deficiencies discussed above, Applicant respectfully submits that a prima facie case of obviousness has not been presented. As neither Shimizu, alone, or in combination with O'Brien, disclose or suggest all of the Applicant's claims, Applicant respectfully requests that the rejection of Claims 5, 7, and 13 under 35 U.S.C. § 103 be withdrawn.

The outstanding Official Action has rejected Claims 8 and 16 under 35 U.S.C. § 103 as being unpatentable over Shimizu in view of Ocepek, and further in view of Ibi. The Official Action asserts that Shimizu discloses all of the Applicant's claim limitations, with the exception of deleting terminal identifiers from a neighboring terminal list table when the terminal leaves the network, nor, deleting a key management list from the key management list table. However, the Official Action cites Ocepek and Ibi as disclosing these more detailed aspects of the Applicant's invention and states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references for arriving at the Applicant's claims. Applicant respectfully traverses the rejection.

As noted above, Shimizu does not disclose, or suggest, all of the elements for which it has been asserted with respect to the amended claims. As neither Shimizu, or Ocepek or Ibi, alone or in combination, remedy the deficiencies discussed above, Applicant respectfully submits that a prima facie case of obviousness has not been presented. As neither Shimizu, alone, or in combination with Ocepek and/or Ibi, disclose or suggest all of the Applicant's

claims, Applicant respectfully requests that the rejection of Claims 8 and 16 under 35 U.S.C. § 103 be withdrawn.

The outstanding Official Action has rejected Claim 9 under 35 U.S.C. § 103 as being unpatentable over Shimizu in view of Ocepek, and further in view of Ibi, and further in view of Meier. The Official Action asserts that Shimizu discloses all of the Applicant's claim limitations, with the exception of deleting terminal identifiers from a neighboring terminal list table when the terminal leaves the network, nor, deleting a key management list from the key management list table. However, the Official Action cites Ocepek, Ibi, and Meier as disclosing these more detailed aspects of the Applicant's invention and states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references for arriving at the Applicant's claims. Applicant respectfully traverses the rejection.

As noted above, Shimizu does not disclose, or suggest, all of the elements of the amended claims for which it has been asserted. As neither Shimizu, or Ocepek, Ibi or Meier, alone or in combination, remedy the deficiencies discussed above, Applicant respectfully submits that a prima facie case of obviousness has not been presented. As neither Shimizu, alone, or in combination with Ocepek, Ibi or Meier, disclose or suggest all of the Applicant's claims, Applicant respectfully requests that the rejection of Claim 9 under 35 U.S.C. § 103 be withdrawn.

The outstanding Official Action has rejected Claim 10 under 35 U.S.C. § 103 as being unpatentable over Shimizu in view of Meier, and further in view of Ibi, and further in view of Ocepek. The Official Action asserts that Shimizu discloses all of the Applicant's claim limitations, with the exception of deleting terminal identifiers from a neighboring terminal list table when the terminal leaves the network, nor, deleting a key management list from the

key management list table. However, the Official Action cites Meier, Ibi, and Ocepek as disclosing these more detailed aspects of the Applicant's invention and states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references for arriving at the Applicant's claims. Applicant respectfully traverses the rejection.

As noted above, Shimizu does not disclose, or suggest, all of the elements of the amended claims for which it has been asserted. As neither Shimizu, or Meier, Ibi or Ocepek, alone or in combination, remedy the deficiencies discussed above, Applicant respectfully submits that a prima facie case of obviousness has not been presented. As neither Shimizu, alone, or in combination with Meier, Ibi or Ocepek, disclose or suggest all of the Applicant's claims, Applicant respectfully requests that the rejection of Claim 10 under 35 U.S.C. § 103 be withdrawn.

The outstanding Official Action has rejected Claims 12 and 14 under 35 U.S.C. §103 as being unpatentable over Shimizu in view of Nuutinen. The Official Action asserts that Shimizu discloses all of the Applicant's claim limitations, with the exception of generating a keyed hashed value in accordance with the Applicant's claims. However, the Official Action cites Nuutinen as disclosing this more detailed aspect of the Applicant's invention and states that it would have been obvious to one skilled in the art at the time the invention was made to combine the cited references for arriving at the Applicant's claims. Applicant respectfully traverses the rejection.

As noted above, Shimizu does not disclose, or suggest, all of the elements for which it has been asserted with respect to the amended claims. As neither Shimizu, or Nuutinen, remedy the deficiencies discussed above, Applicant respectfully submits that a prima facie case of obviousness has not been presented. As neither Shimizu, alone, or in combination

with Nuutinen, disclose or suggest all of the Applicant's claims, Applicant respectfully requests that the rejection of Claims 12 and 14 under 35 U.S.C. § 103 be withdrawn.

The outstanding Official Action has rejected Claims 9, 10, and 15 under 35 U.S.C. § 103 as being unpatentable over Shimizu in view of Ocepek, and further in view of Ibi, and further in view of Meier. The Official Action asserts that Shimizu discloses all of the Applicant's claim limitations, with the exception of deleting terminal identifiers from a neighboring terminal list table when the terminal leaves the network, nor, deleting a key management list from the key management list table. However, the Official Action cites Ocepek, Ibi, and Meier as disclosing these more detailed aspects of the Applicant's invention and states that it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the cited references for arriving at the Applicant's claims. Applicant respectfully traverses the rejection.

As noted above, Shimizu does not disclose, or suggest, all of the elements of the amended claims for which it has been asserted. As neither Shimizu, or Ocepek, Ibi or Meier, alone or in combination, remedy the deficiencies discussed above, Applicant respectfully submits that a prima facie case of obviousness has not been presented. As neither Shimizu, alone, or in combination with Ocepek, Ibi or Meier, disclose or suggest all of the Applicant's claims, Applicant respectfully requests that the rejection of Claims 9, 10, and 15 under 35 U.S.C. § 103 be withdrawn.



CONCLUSION

Consequently, in view of the foregoing amendment and remarks, it is respectfully submitted that the present Application, including Claims 1-16, is patently distinguished over the prior art, in condition for allowance, and such action is respectfully requested at an early date.

Respectfully submitted,

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